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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Hideomi IDEI et al.
Application No.:	10/820,858
Filed:	April 9, 2004
For:	COMPUTER SYSTEM FOR RECOVERING DATA BASED ON PRIORITY OF THE DATA
Group:	2184
Examiner:	Not yet assigned

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

April 6, 2005

Sir:

In response to the Decision on Petition dated March 21, 2005, reconsideration and withdrawal of the Decision is respectfully requested in view of the following remarks.

REMARKS

Initially, in the Decision on Petition dated March 21, 2005, the Examiner notes that the Petition to Make Special filed January 26, 2005 is defective for failing to provide a complete detailed discussion of the most closely related references with the necessary specificity. In addition, the Examiner notes that claims 9 and 11 differ in scope from the discussion presented regarding independent claim 1.

The present invention as recited in the claims is directed to, at least, a computer system that includes: a first site comprising a first computer and a first storage apparatus; a second site comprising a second computer and a second storage apparatus; a computer for management; and a network connecting the first site, the second site, and the computer for management to one another, wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, and wherein, if the first site is stopped, the second site recovers the data by a unit of the group.

The present invention as recited in the claims filed are not taught or suggested by any of the above noted references whether taken individually or in combination with each other or in combination with any of the other references now of record.

It is submitted that the cited references, whether considered alone or in combination, fail to disclose or suggest the invention as claimed. In particular, the

cited references, at a minimum, fail to disclose or suggest wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, and/or wherein, if the first site is stopped, the second site recovers the data by a unit of the group, and/or wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of priorities based upon a recovery time required in recovering data in the second site, which are inputted to the computer for management, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus, and/or wherein, if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

All of the independent claims recite at least one of these features. In particular, independent claim 1 recites wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, and wherein, if the first site is stopped, the second site recovers the data by a unit of the group. Independent claim 9 recites wherein the control unit subjects data, which are stored in storage areas included in the

plurality of disk units, to grouping on the basis of information inputted to the computer for management, stores information on the grouping in the memory, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus on the basis of the information stored in the memory. Independent claim 11 recites wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of priorities based upon a recovery time required in recovering data in the second site, which are inputted to the computer for management, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus, and wherein, if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

The references considered most closely related to the claimed invention are briefly discussed below:

U.S. Patent No. 5,659,614 (Bailey, III) discloses a method and system for prioritizing, securing, and reducing the amount of data transmitted and stored during the creation of a backup copy of file data. Sectors in which changes have been made are identified as are the actual changes made to the sectors. Only the actual changes within each changed sector, along with the HCS number and a byte offset identifying the location within the sector at which the changes occur, are transmitted to the backup site. Files that are to be transmitted to the backup site are prioritized

according to ratings based on predetermined criteria. Higher rated files are transmitted to the backup site prior to lower rated files. The files that are to be transmitted to the backup site are encoded and double encrypted. All instances of predetermined client-specific data elements within each file are identified and replaced by a corresponding code prior to encryption. The file data is then encrypted using multiple, indirect encryption keys, variable block lengths, and variable algorithms based on a client-selected string of characters. The files are thereafter encrypted again at the client site prior to transmission to the backup site. A program registry is maintained at the backup site that contains a master copy of many commercially-available files. The incoming files received from the client site are compared to the files in the program registry. If an incoming file is located in the registry, the file is replaced by a token identifying the commercially-available file and the token is stored at the backup facility. However, unlike the present invention, Bailey does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent No. 5,966,730 (Zulch) discloses a backup system operated in accordance with a server or intelligent storage data controller containing a pre-written script governing a backup protocol. This script designates the possible source of data for backup that could become visible on the network and the possible storage sets that may be available in the storage repository. Preferably, the script also contains a timetable for when the script should be active, and wrap up interval of time for intelligently terminating a particular backup operation. In operation, the total number of accessible data sources (usually computers) and the total number of storage media destinations (for example available tapes mounted in tape drives) are generated to list possible source to storage paths. Utilizing the script, the possible source to storage paths are prioritized with the least recently backed up source as data by the available media having first priority for backup. Once prioritization has occurred, backup is initiated in the order of prioritization to the first available of the designated source to storage media paths. This designation source to media available paths continues down through the prioritized source to storage paths, initiating backup when the source and media are available. As each backup is completed, a new prioritization of source to media paths occurs responsive to location of the last backed up source, with backup occurring on the first available source to media path. Scripts can be tailored to prioritize backups dependent upon time of day. There results a fully automated backup which once programmed does not require constant supervisor monitoring. However, unlike the present invention, Zulch does not disclose where the first storage apparatus subjects data, which are

stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent No. 6,553,401 (Carter et al.) discloses a method of providing high availability of a service includes the step of allocating the service and a shared volume of a first mass storage device associated with the service to a first server of a first subcluster that is located at a first site and that includes servers which share the first mass storage device. Another step of the method includes mirroring the shared volume to a second mass storage device of a second subcluster that is located at a second site and that includes at least one server in order to obtain a first mirrored copy of the shared volume at the second site. Yet another step of the method includes determining to reallocate said service to a first server of the second subcluster. The method also includes the step of allocating the first mirrored copy to the first server of the second subcluster. Moreover, the method includes the step of allocating the service to the first server of the second subcluster in response to the step of determining to reallocate the service to the first server of the second subcluster. Apparatus for carrying out the method are also disclosed. However, unlike the present invention, Carter does not disclose where the first storage

apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent No. 6,601,187 (Sicola et al.) discloses a data replication system having a redundant configuration including dual Fibre Channel fabric links interconnecting each of the components of two data storage sites, wherein each site comprises a host computer and associated data storage array, with redundant array controllers and adapters. Each array controller in the system is capable of performing all of the data replication functions, and each host 'sees' remote data as if it were local. Each array controller has a dedicated link via a fabric to a partner on the remote side of the long-distance link between fabric elements. Each dedicated link does not appear to any host as an available link to them for data access; however, it is visible to the partner array controllers involved in data replication operations. These links are managed by each partner array controller as if being 'clustered' with a reliable data link between them. However, unlike the present invention, Sicola does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a

group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent Publication No. 2003/0069889 A1 (Ofek et al.) discloses a data network with data storage facilities for providing redundant data storage and for enabling concurrent access to the data for multiple purposes. A first data processing system with a first data facility stores a data base and processes transactions or other priority applications. A second data storage facility, that may be physically separated from the first data storage facility, mirrors the data in the first data storage facility. In a concurrent access operating mode, the second data storage facility makes the data available to an application concurrently with, but independently of, the operation of the other application. On completion of the concurrent operation, the second data storage facility can reconnect with and synchronizes with the first data storage facility thereby to reestablish the mirroring operation. However, unlike the present invention, Ofek does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is

stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent Publication No. 2003/0115433 A1 (Kodama) discloses a storage system includes local storage and remote storage. The local storage operates to receive read and write requests to read data from and write data to local storage media. A controller of the local storage maintains a pair table containing the identification of pairs, each pair being a predetermined storage area of the local storage media and a corresponding storage area of the remote storage area. Data written a storage area is assigned a priority, and a remote copy message is prepared, identifying the data, the assigned priority, and the pair containing the identity of the storage area to which the data is written. The remote copy message is stored in a remote copy queue that is periodically reviewed for pending remote copy messages. Any that are found are compared for priorities. Those remote copy messages with higher assigned priorities result in the corresponding data being sent for storage to the remote storage before those remote copy messages with lower assigned priorities. However, unlike the present invention, Kodama does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included

in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent Publication No. 2003/0177324 A1 (Timpanaro-Perrotta) discloses a system, method, and program for maintaining a backup copy of files in a primary storage device in a backup storage device. The files in the primary storage device are capable of being restored from the backup copy of the files in the backup storage device. An association of one of a plurality of priority values is maintained for each file in the backup copy in the backup storage device. The priority value associated with each file in the backup copy of the files is used to determine the order in which the files in the backup copy are restored from the storage device to the primary storage device. However, unlike the present invention, Timpanaro-Perrotta does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

U.S. Patent Publication No. 2004/0128363 A1 (Yamagami et al.) discloses a method for handling a remote copy request in a distributed storage includes providing a plurality of primary volumes within a primary storage system that is

coupled to a primary host via a first network, the primary storage system being coupled to a secondary storage system via a second network. A first request is selected from a plurality of requests placed in a queue based on priority information associated with the requests. A first path group is selected from one or more path groups that could be used to transmit the request. The first request is transmitted to the secondary storage system using the first path group, the secondary storage system including a plurality of secondary volumes that are paired to the plurality of primary volumes. However, unlike the present invention, Yamagami does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

Therefore, since the references fail to disclose wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, and/or wherein, if the first site

is stopped, the second site recovers the data by a unit of the group, and/or wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of priorities based upon a recovery time required in recovering data in the second site, which are inputted to the computer for management, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus, and/or wherein, if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time, it is submitted that all of the claims are patentable over the cited references.

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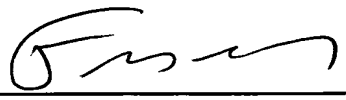
Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



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